



PATENTS  
112056-0172  
P01-1747

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In Re The Application of:  
Peter F. Corbett et al.

Serial No.: 10/720,364

Filed: November 24, 2003

For: SEMI-STATIC DISTRIBUTION  
TECHNIQUE

Examiner: Not yet assigned

Art Unit: Not yet assigned

Cesari and McKenna, LLP  
88 Black Falcon Avenue  
Boston, MA 02210  
July 6, 2005

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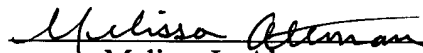
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Sir:

**INFORMATION-DISCLOSURE STATEMENT**

In keeping with the duty of candor and good faith owed to the Patent and Trade-mark Office, Applicants wish to bring to the Examiner's attention the references listed on the accompanying form PTO-1449. A copy of each listed reference is enclosed.

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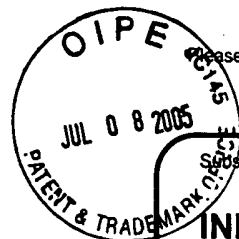
To the extent required by 37 C.F.R. §1.98(a)(3), Applicants have described what they consider to be the relevance of any foreign-language reference. The Office may find additionally relevant material in these or other references.

Please charge any additional fee occasioned by this paper to our Deposit Account No. 03-1237.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Duane H. Dreger", is written over a horizontal line.

Duane H. Dreger  
Reg. No. 48,836  
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## INFORMATION DISCLOSURE STATEMENT BY APPLICANT

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Sheet 1 of 6

### Complete if Known

Application Number	10/720,364
Filing Date	November 24, 2003
First Named Inventor	Peter F. Corbett et al.
Group Art Unit	Not yet assigned
Examiner Name	Not yet assigned
Attorney Docket Number	112056-0172

### U.S. PATENT DOCUMENTS

Examiner Initials *	Cite No. <sup>1</sup>	U.S. Patent Document		Name of Patentee or Applicant of Cited Document	Date of Publication of Cited Document MM-DD-YYYY	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Number	Kind Code <sup>2</sup> (if known)			
	1	Re. 34,100		Hartness	10-13-1992	
	2	3,876,978		Bossen et al.	04-08-1975	
	3	4,092,732		Ouchi	05-30-1978	
	4	4,201,976		Patel	05-06-1980	
	5	4,205,324		Patel	05-27-1980	
	6	4,375,100		Tsuji et al.	02-22-1983	
	7	4,467,421		White	08-21-1984	
	8	4,517,663		Imazeki et al.	05-14-1985	
	9	4,667,326		Young et al.	05-19-1987	
	10	4,688,221		Nakamura et al.	08-18-1987	
	11	4,722,085		Flora et al.	01-26-1988	
	12	4,755,978		Takizawa et al.	07-05-1988	
	13	4,761,785		Clark et al.	08-02-1988	
	14	4,775,978		Hartness	10-04-1988	
	15	4,796,260		Schilling et al.	01-03-1989	
	16	4,817,035		Timsit	03-28-1989	
	17	4,825,403		Gershenson et al.	04-25-1989	
	18	4,837,680		Crockett et al.	06-06-1989	
	19	4,847,842		Schilling	07-11-1989	
	20	4,849,929		Timsit	07-18-1989	
	21	4,849,974		Schilling et al.	07-18-1989	
	22	4,849,976		Schilling et al.	07-18-1989	
	23	4,870,643		Bultman et al.	09-26-1989	
	24	4,899,342		Potter et al.	02-06-1990	
	25	4,989,205		Dunphy, Jr. et al.	01-29-1991	
	26	4,989,206		Dunphy, Jr. et al.	01-29-1991	
	27	5,077,736		Dunphy, Jr. et al.	12-31-1991	
	28	5,088,081		Farr	02-11-1992	
	29	5,101,492		Schultz et al.	03-31-1992	
	30	5,128,810		Halford	07-07-1992	
	31	5,148,432		Gordon et al.	09-15-1992	
	32	5,163,131		Row et al.	11-10-1992	
	33	5,166,936		Ewert et al.	11-24-1992	
	34	5,179,704		Jibbe et al.	01-12-1993	
	35	5,202,979		Hillis et al.	04-13-1993	

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Sheet 3 of 6

### Complete if Known

Application Number	10/720,364
Filing Date	November 24, 2003
First Named Inventor	Peter F. Corbett et al.
Group Art Unit	Not yet assigned
Examiner Name	Not yet assigned
Attorney Docket Number	112056-0172

### OTHER PRIOR ART – NON PATENT LITERATURE DOCUMENTS

Examiner Initials *	Cite No. <sup>1</sup>	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T <sup>2</sup>
	60	ANVIN, PETER H, "The Mathematics of RAID 6," December 2004	
	61	Auspex 4Front NS2000, System Architecture, Network-Attached Storage For a New Millennium, Auspex Engineering Technical Report 24, January 1999	
	62	BESTAVROS, AZER, ET AL., <i>Reliability and Performance of Parallel Disks</i> , Technical Memorandum 45312-891206-01TM, AT&T, Bell Laboratories, Department 45312, Holmdel, NJ, December 1989	
	63	BITTON, DINA, <i>Disk Shadowing</i> , Proceedings of the 14 <sup>th</sup> VLDB Conference, LA, CA (1988)	
	64	BULTMAN, DAVID L., <i>High Performance SCSI Using Parallel Drive Technology</i> , In Proc. BUSCON Conf., pages 40-44, Anaheim, CA, February 1988	
	65	CHEN, PETER ET AL., <i>Two Papers on RAIDs</i> , Technical Report, CSD-88-479, Computer Science Division, Electrical Engineering and Computer Sciences, University of California at Berkeley (1988)	
	66	CHEN, PETER M., ET AL., <i>An Evaluation of Redundant Arrays of Disks Using an Amdahl 5890</i> , Performance Evaluation, pp. 74-85, 1990 – check to see if exact same copy as one in WAFL	
	67	CHEN, PETER M., ET AL, Maximizing Performance in a Striped Disk Array, Proc. 1990 ACM SIGARCH 17th Intern. Symp. on Comp. Arch., Seattle, WA, May 1990, pp. 322-331.	
	68	CHEN, PETER M., ET AL., <i>RAID: High Performance, Reliable Secondary Storage</i> , ACM Computing Surveys, 26(2):145-185, June 1994	
	69	CHERVENAK, ANN L., <i>Performance Measurement of the First RAID Prototype</i> , Technical Report UCB/CSD 90/574, Computer Science Division (EECS), University of California, Berkeley, May 1990	
	70	COPELAND, GEORGE, ET AL., "A Comparison of High-Availability Media Recovery techniques," in Proc. ACM-SIGMOD Int. Conf. Management of Data, 1989.	
	71	COURTRIGHT II, WILLIAM V., ET AL., <i>RAIDframe: A Rapid Prototyping Tool for RAID Systems</i> , Computer Science Technical Report CMU-CS97-142, Carnegie Mellon University, Pittsburgh, PA 15213, June 4, 1997	
	72	EVANS <i>The Tip of the Iceberg: RAMAC Virtual Array – Part I</i> , Technical Support, March 1997, pp. 1-4	

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	73	GIBSON, GARTH A., ET AL., <i>Coding Techniques for Handling Failures in Large Disk Arrays</i> , Technical Report UCB/CSD 88/477, Computer Science Division, University of California, (July, 1988.)	
	74	GIBSON, GARTH A., ET AL., <i>Failure Correction Techniques for Large Disk Arrays</i> , In Proceedings Architectural Support for Programming Languages and Operating Systems, Boston, Apr. 1989, pp 123-132	
	75	GIBSON, GARTH A., ET AL., <i>Strategic Directions in Storage I/O Issues in Large-Scale Computing</i> , ACM Computing Survey, 28(4):779-93, December 1996	
	76	GOLDICK, JONATHAN S., ET AL., <i>Multi-resident AFS: An Adventure in Mass Storage</i> , In Proceedings of the 1995 USENIX Technical Conference, pages 47-58, January 1995	
	77	GRAHAM, SUSAN L., ET AL., <i>Massive Information Storage, Management, and Use</i> , (NSF Institutional Infrastructure Proposal), Technical Report No. UCB/CSD 89/493, January 1989	
	78	GRAY, JIM ET AL., <i>Parity striping of disc arrays: Low-Cost Reliable Storage with Acceptable Throughput</i> . In Proceedings of the 16th Very Large Data Bases Conference, pages 148--161, Brisbane, Australia, 1990	
	79	GRIMES, DW MARTINEZ, <i>Two Dimensional Parity Error Correction Procedure</i> , IBM Technical Disclosure Bulletin 2686-2689, October 1982	
	80	GRIMES, DW MARTINEZ, <i>Vertical Parity Generator for Two Dimensional Parity</i> , IBM Technical Disclosure Bulletin 2682-2685, October 1982	
	81	HELLERSTEIN, LISA, ET AL., <i>Coding Techniques for Handling Failures in Large Disk Arrays</i> . In Algorithmica Vol. 2, Nr. 3, 182-208 (1994)	
	82	HUGHES, JAMES, ET AL., <i>High Performance RAIT</i> , Tenth NASA Goddard Conference on Mass Storage Systems and Technologies and Nineteenth IEEE Symposium on Mass Storage Systems, Adelphi, Maryland, USA, April 2002	
	83	JOHNSON, THEODORE, ET AL, <i>Tape Group Parity Protection</i> , IEEE Symposium on Mass Storage, pp. 72-79, March 1999	
	84	KATZ, RANDY H. ET AL., <i>Disk System Architectures for High Performance Computing</i> , undated	
	85	KENT, JACK ET AL., <i>Optimizing Shadow Recovery Algorithms</i> , <i>IEEE Transactions on Software Engineering</i> , 14(2):155-168, Feb. 1988.	

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	86	KIM, MICHELLE Y., <i>Synchronized Disk Interleaving</i> , IEEE Transactions on Computers, C-35(11):978-988, November 1986	
	87	KIM, MICHELLE, ET AL., <i>Asynchronous Disk Interleaving Approximating Access Delays</i> , IEEE Transactions on Computers, vol. 40, no.7, July 1991, pp. 801-810.	
	88	LAWLOR, F. D., <i>Efficient Mass Storage Parity Recovery Mechanism</i> , IBM Technical Disclosure Bulletin 24(2):986-987, July 1981	
	89	LEE, EDWARD K., ET AL., <i>RAID-II: A Scalable Storage Architecture for High-Bandwidth Network File Service</i> , Technical Report UCB/CSD 92/672, (February 1992)	
	90	LI, DON, ET AL., <i>Authors' Reply</i> , IEEE Transactions on Communications, 46:575, May 1998.	
	91	LIVNY, MIRON, ET AL., <i>Multi-Disk Management Algorithms</i> , In Proceedings of the ACM International Conference on Measurement and Modeling of Computer Systems (SIGMETRICS), pages 69- 77, Banff, Alberta, Canada, May 1987	
	92	MEADOR, WES E., <i>Disk Array Systems</i> , Proceedings of COMPCON, 1989, pp. 143-146	
	93	NG, SPENCER, ET AL., <i>Trade-Offs Between Devices and Paths in Achieving Disk Interleaving</i> , IEEE International Symposium on Computer Architecture, 1988, pp. 196-201	
	94	NG, SPENCER, <i>Some Design Issues of Disk Arrays</i> , Proceedings of COMPCON Spring '89, pages 137-42. IEEE, 1989	
	95	PARK, ARVIN, ET AL., <i>Providing Fault Tolerance In Parallel Secondary Storage Systems</i> , Technical Report CS-TR-057-86, Princeton, November, 1986	
	96	PATEL, ARVIND M., <i>Adaptive Cross-Parity (AXP) Code for a High-Density Magnetic Tape Subsystem</i> , IBM Technical Disclosure Bulletin 29(6):546-562, November 1985	
	97	PATTERSON, D., ET AL., <i>A Case for Redundant Arrays of Inexpensive Disks (RAID)</i> , Technical Report, CSD-87-391, Computer Science Division, Electrical Engineering and Computer Sciences, University of California at Berkeley (1987)	
	98	PATTERSON, D., ET AL., <i>A Case for Redundant Arrays of Inexpensive Disks (RAID)</i> , SIGMOD International Conference on Management of Data, Chicago, IL, USA, 1-3 June 1988, SIGMOD RECORD (17)3:109-16 (Sept. 1988)	

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	100	STORAGESUITE "Performance Without Compromise: The Virtual Storage Architecture," catalogue, 1997	
	101	REDDY, A. L. NARASIMHA, ET AL., <i>An Evaluation of Multiple-Disk I/O Systems</i> , IEEE Transactions on Computers, Vol. 38, No 12, December 1989, pp. 1680 - 1690.	
	102	SCHULZE, MARTIN E., <i>Considerations in the Design of a RAID Prototype</i> , Computer Science Division, Department of Electrical Engineering and Computer Sciences, Univ. of CA, Berkley, August 25, 1988	
	103	SCHULZE, MARTIN., ET AL., <i>How Reliable is a RAID?</i> , Proceedings of COMPCON, 1989, pp. 118-123	
	104	SHIRRIFF, KENNETH W., <i>Sawmill: A Logging File System for a High-Performance RAID Disk Array</i> , CSD-95-862, January 1995	
	105	STONEBRAKER, MICHAEL, ET AL., <i>The Design of XPRS</i> , Proceedings of the 14 <sup>th</sup> VLDB Conference, LA, CA (1988)	
	106	TANABE, TAKAYA, ET AL, <i>Redundant Optical Storage System Using DVD-RAM Library</i> , IEEE Symposium on Mass Storage, pp. 80-87, March 1999	
	107	TEKROM - "About RAID 6"	
	108	TWETEN, DAVID, <i>Hiding Mass Storage Under UNIX: NASA's MSS-H Architecture</i> , IEEE Symposium on Mass Storage, pages 140-145, May 1990	
	109	WILKES, JOHN, ET AL., <i>The HP AutoRAID hierarchical storage system</i> , ACM Transactions on Computer Systems, February 1996, vol. 14, pp. 108-36	

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